Indian Journal of Geo Marine Sciences
Vol. 50 (06), June 2021, pp. 498-501

Short Communication

First record of whitespot sandsmelt, *Parapercis alboguttata* (Günther, 1872) from the southeast coast of Bangladesh

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Received 16 March 2020; revised 01 June 2021

Fish species are motile and frequently occur in the new geographic area increasing their distributional range intentionally or accidentally. Species in the genera are very close to each other morphologically. Thus, proper identification of a species is essential for the implementation of efficient management and conservation plans. The presence of whitespot sandsmelt, *Parapercis alboguttata* in the coastal water of Bangladesh was confirmed based on the morphological features with the record of seven specimens in March 2018. The specimens, captured from the northernmost part of the Bay of Bengal, were estimated to be 115-201 mm in total length. The presence of recurved canine teeth, a sharp spine on the opercula, comparatively large third spine of the dorsal fin, and light blue coloration of the snout are considered as the unique characters to identify this species. This record represents the rapid expansion of its distributional range along the coast of south-east Asia which is mostly known from the Indo-West Pacific region. Probable reasons for its introduction in the coastal waters of Bangladesh are discussed; however, the dynamics of the occurrence of *P. alboguttata* in the Bay of Bengal remain unknown.

[**Keywords**: Bay of Bengal, First record, *Parapercis alboguttata*, Sonadia Island]

Introduction

The genus *Parapercis* under the family Pinguipedidae is a large group of bony fishes commonly known as sandperches. Currently, Pinguipedidae family represents 82 species of sandperches across the world with 7 genera of which *Parapercis* is the most diverse. Sandperches are marine and mostly found in the Indo-Pacific region (Western Pacific, Central Pacific, Eastern Central Pacific, Western Central Pacific, Indo-West Pacific), Northwest Pacific, and in Western Indian Ocean; however, only *Parapercis banoni* is reported from the Southeastern Atlantic. The bluenose sandperch, *Parapercis alboguttata* commonly known as the blue-nosed grubfish or whitespot sandsmelt is also a marine species in the genus *Parapercis*. The species is native to the Indo-west Pacific region covering Persian Gulf, India, the Philippines, Indonesia, and northwestern Australia[1]. It is a bottom dweller and generally found in the shallow water; for instance, the continental and oceanic shelves and in upper slope over sand or shingle bottoms, and often occur near coral reef areas. It feeds on other living benthic organisms, predominantly mollusks (gastropod), crustaceans (crabs, larval shrimp, and crabs), and small bony fish, with small amounts of polychaete worms.

Nutrient-rich northernmost Bay of Bengal coast is being considered as a hotspot for fisheries diversity and abundance[2-5]. But a lot of fisheries resources remain unexplored and even none of the species of genus *Parapercis* has been reported from the coastal waters of Bangladesh till now. Thus, the present ichthyological report represents the first record of *P. alboguttata* in the coastal water of Bangladesh.

Materials and Methods

Specimens of sandperch were collected from a fisherman during a survey on coastal fish fauna available at Sonadia Island, Bangladesh (Fig. 1). The fisherman caught seven specimens of sandperch by operating a coastal set bag net (Mesh size: mouth opening 30 mm and cod end 5 mm) during daytime at a depth of approximately 32 m. Collected specimens were preserved in an icebox and were taken to the laboratory for identification. The species was identified as whitespot sandmelt, *P. alboguttata* (Fig. 2) based on morphometric and meristic characters following previously published record[6-8]. A digital Vernier caliper was used for morphometric measurement with an accuracy of 0.01 mm. All morphometric measurements and meristic counts are presented in Table 1. The species is deposited in the

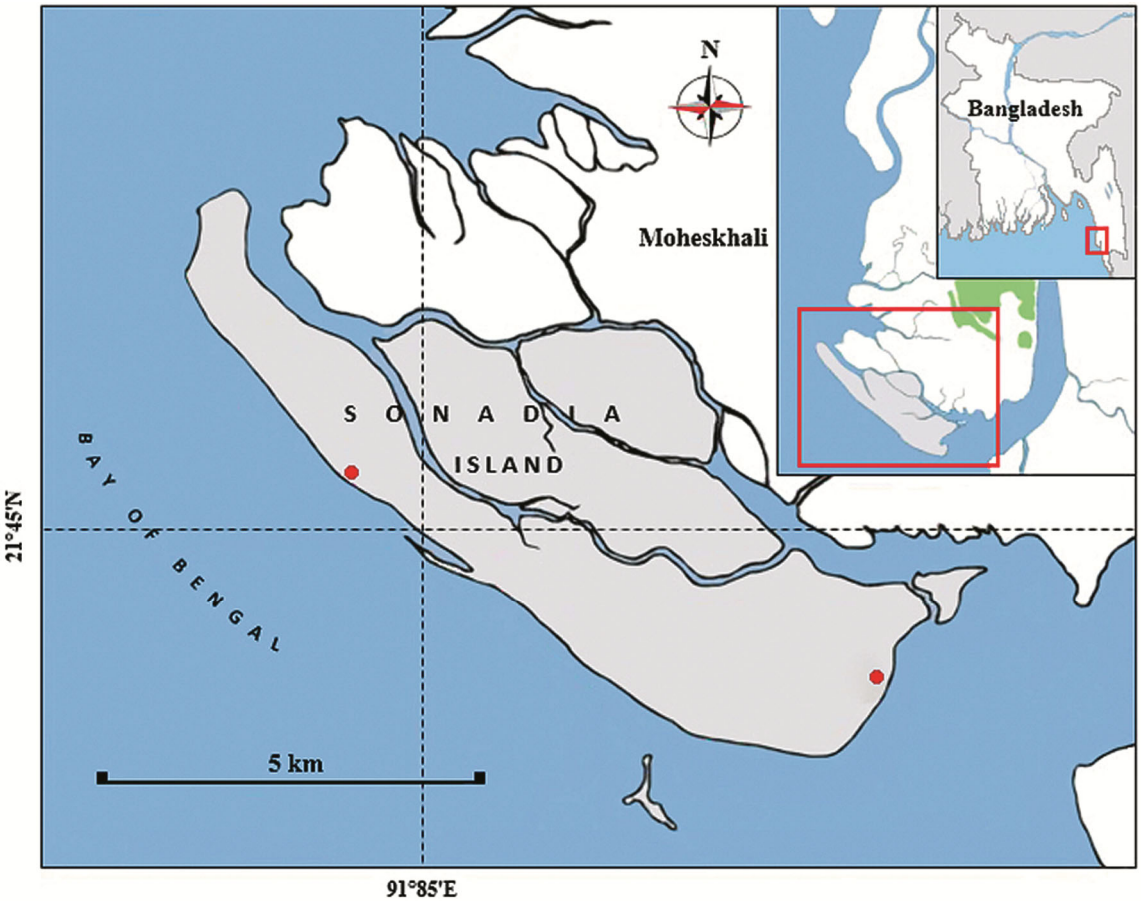

Fig. 1 — Collection site of *P. alboguttata* at the Sonadia Island, South-east coast of Bangladesh

Fig. 2 — *P. alboguttata*, 115 mm TL from the Sonadia Island, South-east coast of Bangladesh, March 3, 2018

fisheries laboratory, Patuakhali Science and Technology University.

Results

The total length of collected specimens was ranged between 115-201 mm with a body weight of 16.02 – 34.78 g. Body relatively cylindrical and covered with ctenoid scales, and abdomen and chest with cycloid scales. Head relatively large, front of the lower jaw with 6 (3 pairs) canine teeth while upper jaw contains 2 (1 pair) of teeth. Lateral line complete, somewhat arched above pectoral fins. In fresh condition, body color was reddish dorsally and shedding white in ventral part with two rows of indistinct light reddish spots above and below the lateral line. Caudal fin with clearly visible two dark red spots at the base, several longitudinal yellowish blotches in the middle part of the caudal fin. Snout light blue with skew yellow lines. Spiny dorsal fin with third spine longest. Caudal peduncle was slender. Anal fins were decorated with distinct yellow blotch obliquely (Fig. 2).

Discussion

Morphological features both morphometric and meristic traits, color, structure, and shape is in accordance with the previous records and descriptions of *P. alboguttata*[6-8]. Coloration is considered as an important character for *Parapercis* species taxonomy. However, no significant differences in coloration are recognized between *P. elongata* and *P. alboguttata*. But several morphological differences are recognized between *P. elongata* and *P. alboguttata* specially in

Table 1 — Comparison of biometric and meristic traits of *Parapercis alboguttata* with previous records collected from the South-east coast (Sonadia Island) of Bangladesh, March 3, 2018

Morphometric measurements	Minimum-maximum size (mm)				
	This study (n = 7)		Das *et al*.[6] (n = 1)	Ho[7] (n = 1)	Peristiwady & Achmad[8] (n = 2)
	min	max			
Total length	115	201	205	-	204.50-219.50
Standard length	97	169	171	208	173.50-185.50
Head length	33	52	53	59.0	53.04-56.57
Body depth	19	21	26	31.4	28.59-32.32
Depth of caudal peduncle	9	12	13	13.8	12.01-12.63
Pre-dorsal length	35	50	50	59.9	50.67-54.77
Pre pectoral length	36	56	59	-	-
Pre-ventral length	28	46	49	49.4	45.20-49.69
Eye diameter	9	11	10	11.2	13.69-14.16
Pre-orbital length	9	16	16	-	-
Post-orbital length	15	25	24	-	-
Pre-anal length	44	80	81	87.0	81.14-85.81
First dorsal fin base length	63	102	105	134.5	104.37-116.49
Second dorsal fin base length	8	9	10	-	-
Anal fin base length	49	73	73	7.5	81.29-86.61
Pectoral fin length	18	26	28	35.2	28.25-30.40
Ventral fin length	19	27	29	39.1	-
Meristic counts					
Dorsal spine	5	5	5	5	5
Anal spine	1	1	1	1	-
Ventral spine	1	1	1	1	-
Dorsal fin soft rays	22	22	22	22	22
Pectoral fin soft rays	16	18	16	18	17-18
Ventral fin soft rays	5	5	5	5	6
Anal fin soft rays	18	18	18	18	19
Branchiostegal ray	6	6	6	6	-

snout and orbital length. All specimens were captured from 32 m depth but in general, this species occurs within the water depth of 50-120 m(ref. 9) which could be due to vertical migration for feeding purposes. The intentional expansion of the distributional range and establishment of a demersal fish in a new geographical area mainly depends on the suitable environmental condition, food availability and viability of breeding activity of that area[10]. Different vectors, for instance, water circulation pattern, ocean current, sea warming provides the compatible condition for the distributional range expansion of aquatic species[11]. The presence of *P. alboguttata* along the coast of the Bay of Bengal could be as a result of northern migration from the southern coast of India across the Bay of Bengal, where, suitable hydrological conditions and ocean current dynamics contribute to the distribution of eggs, larvae, and juveniles of this fish species. Suitability of habitat and hydrological conditions of the Bay of Bengal also reported by Ramachandran *et al*.[12], where he observed isometric growth of *P. alboguttata.* The present investigation proves that the abundance of this species was high in the latitude of 10° rather than 7°, 8°, and 9°, which indicates that with increasing latitude the abundance of *P. alboguttata* is also increasing. So, the probability of occurrence, range extension, and establishment of a viable population of *P. alboguttata* in the southeast coast (21°34'38.9" N) of Bangladesh, therefore should not be underestimated. Previously, *Parapercis alboguttata* was reported from Makassar Strait and Lembeh Island, North Sulawesi, Indonesia by Peristiwady & Achmad[8], southwest coast of India, and later from Bombay waters by Pillai & Somavansi[6]. In recent years, several tropical and subtropical fish species have extended their distribution range northwards in the Bay of Bengal[13]. As *P. alboguttata* is a tropical fish species with a preferred temperature range of 22.4 – 28.1 °C[14], the introduction of this species in the coastal water of Bangladesh is not questionable.

Ichthyofaunal diversity of the Bay of Bengal is increased by the introduction of different non-

indigenous fish species from adjacent geographical areas[6,15-17]. The recent introduction of *P. alboguttata* species increases the total number of fish species in the coastal water of Bangladesh as well as increases the survival chance of this species introduced intentionally or accidentally.

Acknowledgements

The authors would like to thank the fisherman who brought us captured specimen. The authors did not receive any fund from any funding organization, institution, or agency.

Conflicts of Interest

The authors declare that they have no conflicts of interests.

Author Contributions

MAH was involved in the specimen collection, morphometric analysis and preparation of main draft of the manuscript; MABS designed the study, revised the manuscript and supervised the work; and RS revised and finalized the manuscript.

References

1 Cantwell G E, A revision of the genus Parapercis, family Mugiloididae, *Pac Sci*, 18 (1964) 239–280.

2 Siddik M A B, Hanif M A, Chaklader M R, Nahar A & Fotedar R, A multivariate morphometric investigation to delineate stock structure of gangetic whiting, *Sillaginopsis panijus* (Teleostei: Sillaginidae), *Springer Plus*, 5 (2016) 520. http://dx.doi.org/10.1186/s40064-016-2143-3.

3 Siddik M A B, Hanif M A, Nahar A, Chaklader M R & Kleindienst R, First record of the razorbelly scad, *Alepes kleinii* (Bloch, 1793) (Carangidae) along the coast of Bangladesh, *Mar Biodivers Rec*, 10 (2017) 32. http://dx.doi.org/10.1186/s41200-017-0134-x.

4 Nahar A, Hanif M A, Siddik M A B, Chaklader M R & Islam M A, Length–weight and length-length relationships of four endemic fish species caught from Payra River, Southern Bangladesh, *J Appl Ichthyol*, 34 (2017) 785-787. https://doi.org/10.1111/jai.13601.

5 Hanif M A, Islam M A, Siddik M A B & Chaklader M R, Length-weight relationships of three estuarine fish species from Bangladesh, *J Appl Ichthyol*, 34 (2018) 1065-1067. https://doi.org/10.1111/jai.13707.

6 Das M, Behera P R, Dash B, Ghosh S & Menon M, About the record of bluenose sandperch *Parapercis alboguttata* (Günther, 1872) from northeast coast of India, *Indian J Geo-Mar Sci*, 45 (2016) 1487-1490.

7 Ho H-C, New record of white spot sand perch *Parapercis alboguttata* (Günther, 1872) from Taiwan, with a key to sand perches of Taiwan, *Platax*, 11 (2014) 71-81.

8 Peristiwady T & Achmad F, Second record of blue-nosed grubfish, *Parapercis albogutta* (Günther, 1872) (Perciformes: Penguipedidae) from Bitung, north Sulawesi, *Makara J Sci*, 13 (2009) 29-32.

9 Randall J E, Pinguipedidae (= Parapercidae, Mugiloididae). Sandperches, In: *FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Vol. 6. Bony fishes' part 4 (Labridae to Latimeriidae), estuarine crocodiles*, edited by K E Carpenter & V H Niem, (FAO, Rome), 2001, pp. 3501-3510.

10 Siddik M A B & Hanif M A, Is the occurrence of dragonets fish (*Callionymus carebares* and *Callionymus profundus*) in the coastal waters of Bangladesh natural or incidental? *Reg Stud Mar Sci*, 38 (2020) 101361. https://doi.org/10.1016/j.rsma.2020.101361.

11 Gurlek M, Erguden D, Dogdu S A & Turan C, First record of greenback horse mackerel, *Trachurus declivis* (Jenyns, 1841) in the Mediterranean Sea, *J Appl Ichthyol*, 32 (2016) 976–977. https://doi.org/10.1111/jai.13159.

12 Ramachandran S, Philip K P, Narayanan M & Tharumar Y, Distribution and biological aspects of grub fish, *Parapercis alboguttata* (Gunther), *Indian J Fish*, 49 (2002) 205-207.

13 Hanif M A, Siddik M A B, Nahar A, Chaklader M R & Fotedar R, A new distribution of the buffon's river garfish, *Zenarchopterus buffonis* (Valenciennes, 1847) in the coastal rivers of Bangladesh, *J Appl Ichthyol*, 33 (2017) 1211–1214. https://doi.org/10.1111/jai.13462.

14 Kaschner K, Kesner-Reyes K, Garilao C, Rius-Barile J, Rees T, *et al.*, AquaMaps: predicted range maps for aquatic species, World Wide Web electronic publication, www.aquamaps.org, Version 08/2016.

15 Hanif M A, First record of blue mackerel, *Scomber australasicus* (Pisces: Scombridae) in the Bay of Bengal, Bangladesh, *Aquat Res*, 2 (4) (2019) 211-215. https://doi.org/10.3153/AR19020.

16 Hanif M A, Siddik M A B, Islam S R, Islam M A & Mahfuj M S, First record of a non-indigenous lanternbelly, *Acropoma argentistigma* (Teleostei: Perciformes: Acropomatidae) from the Bay of Bengal coast of Bangladesh, *Egyptian J Aquat Biol Fish*, 24 (7) (2020) 677-684.

17 Hanif M A, Sharker M R, Hossen S & Bipu M, New distributional record of oblique-banded groper, *Epinephelus radiatus* (Day, 1868) from the St. Martin Island, Bangladesh, *Aquat Res*, 4 (2) (2021) 145-150. https://doi.org/10.3153/AR21011.